AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figure 1 pursuant to the suggestion made by the Examiner, the Applicants have amended Figure 1 to include the legend -- Prior Art--. Accordingly, Applicants respectfully request the withdrawal of the objection to the drawings based on the omission of the Prior Art legend on Figure 1.

Attachment: Replacement sheet

REMARKS

Claims 1-11 are now present in this application.

Claims 2 and 4-11 have been amended. No claims have been canceled and no new claims have been added.

I. Objection to the Drawings

The Examiner has objected to the Drawings since Figure 1 should be designated by a legend such as -- Prior Art -- because only that which is old is illustrated. In accordance with the Examiner's recommendation and to obviate the objection, the Applicants have amended Figure 1 to include the legend -- Prior Art --. The Examiner is respectfully requested to withdraw the objection of the drawings based on the omission of the Prior Art legend.

II. Objection to the Specification

The Examiner has objected to the specification by indicating that claims 4-11 are presently in improper form since a multiple dependent claim cannot further depend upon another multiple dependent claim. Pursuant to the Examiner's indication of improper multiple dependent form, and to further clarify the claimed invention, Applicants have amended claims 4-11 as indicated above, to remove the improper compound multiple dependent claim structure and to obviate the objection under 37 C.F.R. § 1.75(c). Accordingly, Applicants respectfully request the withdrawal of the objection to the specification based upon inclusion of improper compound multiple dependent claims pursuant to 37 C.F.R. § 1.75(c).

III. Claim Objections

The Examiner has objected to claim 2 because of formalities. The Examiner states that "A method as claim 1" should be changed to "A method as in claim 1". Accordingly, Applicants have amended claim 2 to recite a method as claimed in claim 1, and to obviate the objection made by the Examiner, and Applicants respectfully request the withdrawal of the objection to claim 2.

IV. Claim Rejections Under 35 U.S.C. § 112

The Examiner rejects claims 8 and 10-11 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 10 and 11 are hybrid claims having both apparatus and method limitations. These claim rejections are respectfully traversed.

With regards claims 8 and 10, they have been amended to more clearly set forth Applicants' claimed invention and more appropriately focus upon either the elements of the inventive apparatus or the elements of an inventive method. Accordingly, Applicants respectfully request that in view of the above amendments and these remarks, that the Examiner withdraw the rejections of claim 10 and 11 under 35 U.S.C. § 112, second paragraph.

With regards to claim 8, the Examiner has allegedly rejected the claim for reciting "are derived in such a way" since this limitation allegedly renders the claim indefinite.

However, Applicants respectfully assert that no modification is necessary to the limitation in its present form since this limitation is clearly supported in the specification and sufficiently describes Applicants' claimed invention. Specifically, the alleged indefinite function specified in claim 8 (namely enabling the resultant signal to fluctuate at intervals substantially shorter than a guard space), can be achieved in a number of different ways, including using filters which have a short time constant, or not using any filters at all. Accordingly, Applicants respectfully assert that one of ordinary skill in the art would be able to appreciate the different ways of achieving the result and would easily be able to determine that such a result has been achieved. Accordingly, Applicant's respectfully request the withdrawal of the rejection of claim 8 under 35 U.S.C. § 112, second paragraph.

V. Claim Rejections Under 35 U.S.C. § 103

The Examiner rejects claims 1-11 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,539,063 to Peyla et al. (hereinafter "Peyla") in view of EP 0896457 to Huang et al. (hereinafter "Huang"). These rejections are respectfully traversed.

It is useful to appreciate certain conventional techniques that are well known in the art whereby signals can be transmitted in the form of useful symbol periods separated by guard

spaces, with data in each guide space corresponding to part of the data in the useful period. It is also common to detect a symbol boundary by correlating samples which are separated by a period of corresponding to the useful part of the symbol. Therefore, for example, correlation would involve multiplying the complex value representing sample X by the complex conjugate of the value of sample Y, where samples X and Y are separated by the period N representing the useful part of the symbol. If sample X lies within the guard space, then the value of sample X will (in ideal circumstances) be equal to the value of sample Y. The output of the correlator will therefore be high. In other circumstances, outside the guard space period, the samples are uncorrelated and therefore the correlator output will fluctuate, and, on average, be significantly lower. Accordingly, the output of the correlator can be monitored to determine the symbol boundary.

This conventional technique is used in many prior art systems, including that of Peyla.

It should also be noted that, at any given instance, the correlator output is dependent upon the complex values of the two samples at the input (i.e., both the phase and the amplitude of each sample); however, the output is a simple scaler value representing the degree of correlation. Therefore, the output can be high or low for any arbitrary pair of phases of the input samples.

According to the present invention, the relationship between the complex samples is examined by separately considering the relationship between the amplitudes (using the "first signal") and the relationship between the phases (using the "second signal"). This technique has significant advantages as described in detail at page 5, lines 9-16, since it is possible to provide a clearer distinction between the period in which guard period samples are being processed and in the period in which guard period samples are not being processed. In addition, in the case of multi-path interference it is possible to more easily distinguish between sub-intervals of the period during which the guard period samples are being processed. Also, the function of separately considering the relationship between the amplitudes using the "first signal" and the relationship between the phases using the "second signal" also permits different filtering to be applied to the phase and amplitudes signal. See, for example, page 6, lines 1-8.

The system deployed in Peyla is dramatically different from that described above and clearly claimed as Applicant's invention. Although the Examiner indicates that Peyla does not

disclose guard spaces with data corresponding to part of the data in a respective useful period of the symbol period, it is respectfully pointed out that, in fact, Peyla does make such a disclosure at, for example, column 2, lines 27-30. However, even assuming in arguendo, that one of ordinary skill in the art would benefit from such disclosure concerning guard spaces with data corresponding to part of the data in a respective useful period of the symbol, Peyla does not disclose the feature of providing separate first and second signals dependent upon the relationships between the amplitudes and phases, respectively, pairs of samples, and combining the signals to generate a synchronization pulse. See, for example, Figure 3, wherein the symbol timing signal T is obtained by the technique described above in what has been described as conventional techniques.

Therefore, the correlation product is provided on line 130. After signal enhancement, the squared magnitude of the product is magnified of the product is provided by block 195, and the block 200 detects the signal peak to provide the symbol timing offset T. Therefore, with Peyla, at no point does this synchronization signal depend upon a separate, second signal dependent upon the relationship between the phases of the input samples. A phase value is obtained using the phase extractor 205, but this if for an entirely different purpose (correction of a carrier frequency, not synchronization pulse). As such, Applicants respectfully assert that Peyla clearly teaches away from the aforementioned advantages of Applicants' claimed invention.

Huang fails to provide what is lacking in Peyla to render claims 1-11 obvious. Specifically, and for at least the same reasons with regards to Peyla, Huang fails to at least disclose Applicants' claimed invention for the same reasons recited above. It is respectfully submitted that Huang appears to generally relate to symbol synchronization. However, Huang fails to disclose at least the feature providing separate first and second signals dependent upon the relationships between the amplitudes and phases, respectively, of pairs of samples, in combining the signals to generate a synchronization pulse.

Accordingly, Applicants respectfully assert that claims 1-11, are currently distinguishable from Peyla in view of Huang, and as such should immediately passed to issuance.

IV. Conclusion.

All matters having been addressed in view of the foregoing, Applicants respectfully request the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of all pending claims.

Applicants' undersigned representative remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains an issue in which the Examiner feels would be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Dated: September 11, 2007

Respectfully submitted,

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Attachments